



# South Park Bridge

## Critical Infrastructure in Need of Replacement



King County Department  
of Transportation

January 23, 2008





# Agenda



1. **Regional Importance of South Park Bridge** – vital to S & SW King County and South Seattle
2. **Project Urgency** – seismically vulnerable bridge in poor condition
3. **Implications of a Bridge Closure** – impacts to local / regional traffic and local businesses
4. **Project Status** – EIS and design efforts underway
5. **Project Funding**



# Regional Importance



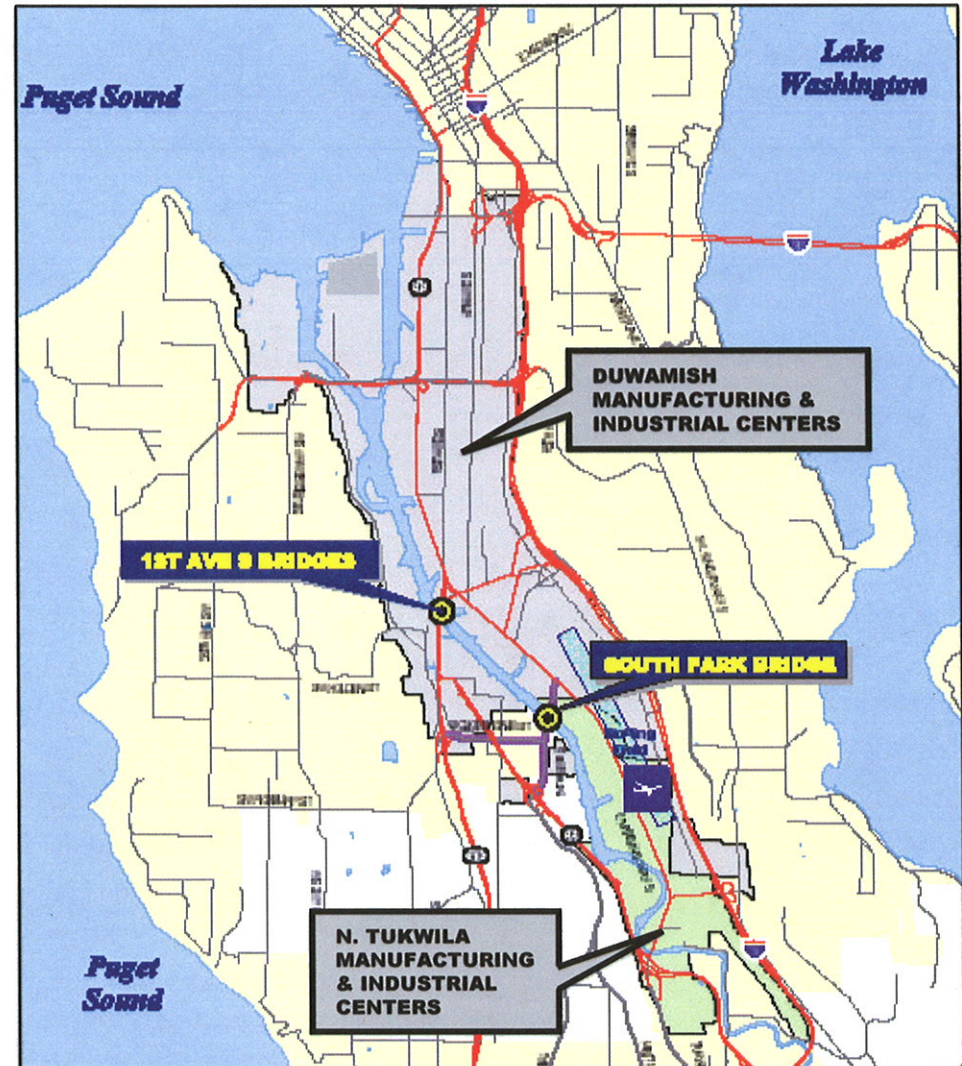




## Bridge vital to Manufacturing & Industrial Centers

- Critical T-1 facility\* carries over 10 million tons of freight/year in N. Tukwila & Duwamish Manufacturing & Industrial Centers
- 20,000 vehicles per day
- 2,600 trucks/day - 13% (compare to 5% at First Ave S Br)
- Limited river crossings in industrial area
- Serves Seattle's South Park community

\* Classified by WSDOT with assistance from the County Road Admin Board (CRAB), and Assoc of Washington Cities (AWC)







## Bridge supports South Park business community



**The Boeing Co. & King County International Airport**



**Diverse South Park business corridor**



**Sea Mar Clinic – medical facility for minorities – largest employer in South Park (400 employees)**



**Delta Marine – yacht builder – 2nd largest employer in South Park (350 employees)**





## Industrial Clusters surround bridge

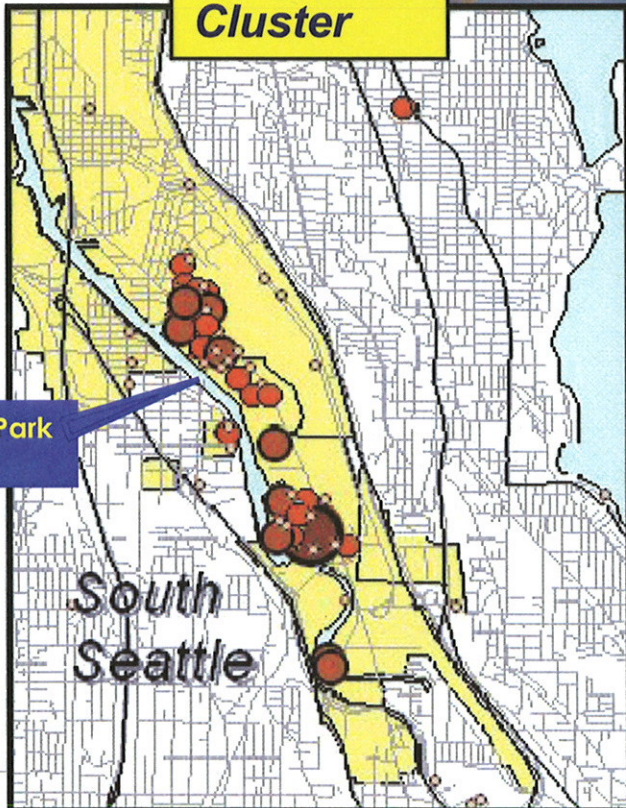
Over  
**17,000**  
**employed**  
in targeted  
cluster  
industries  
**within one**  
**mile of**  
**bridge**



**Aerospace  
Cluster**

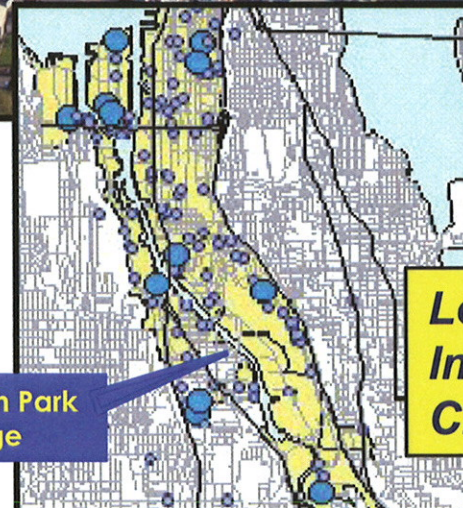
**South Park  
Bridge**

**South  
Seattle**



**South Park  
Bridge**

**Logistics &  
Int'l Trade  
Cluster**



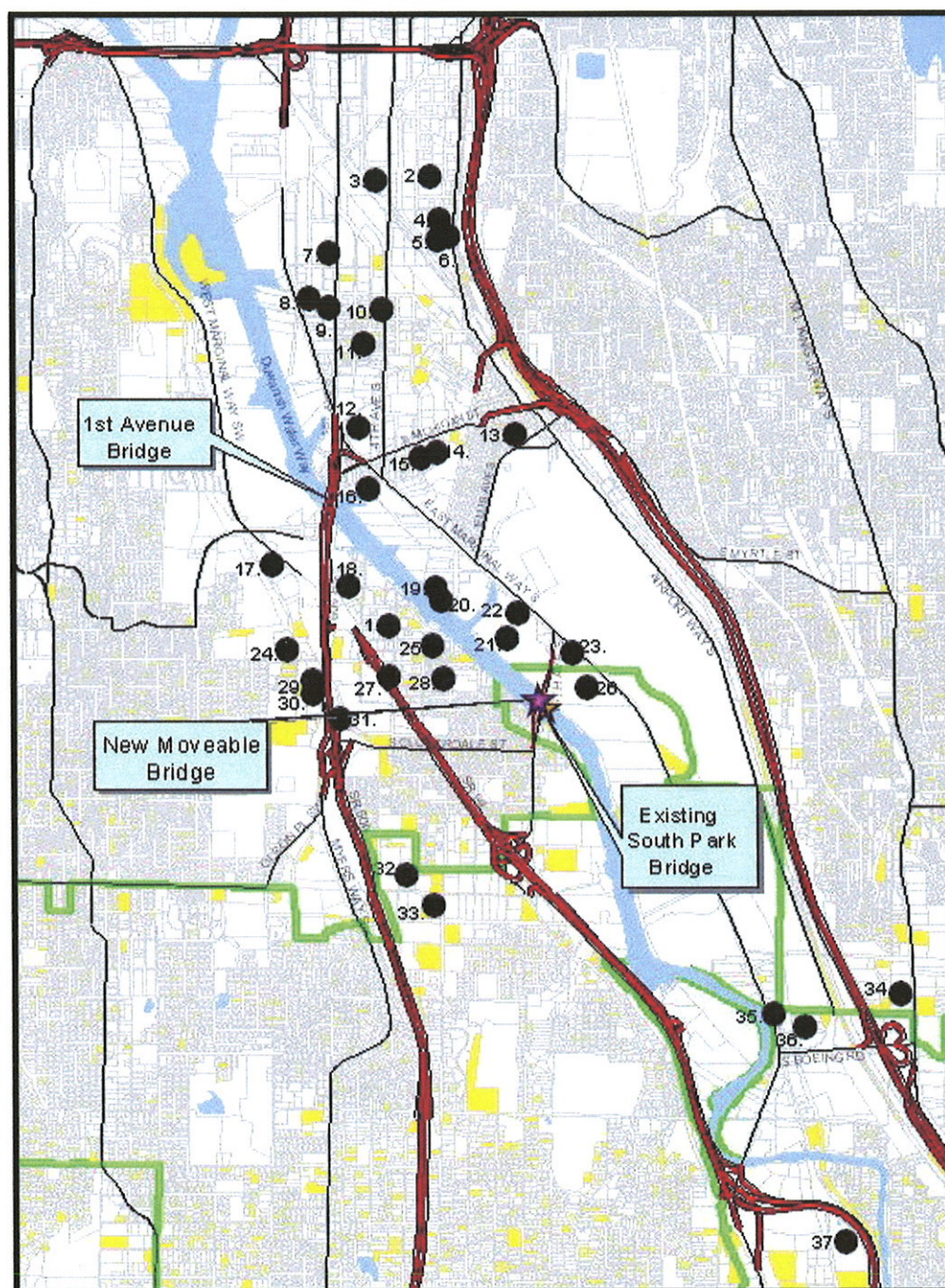




## Truck Survey Results

### A Typical Day

- Each ● represents a business that used bridge
- Bridge used by local businesses
- Users spread out among M & I centers





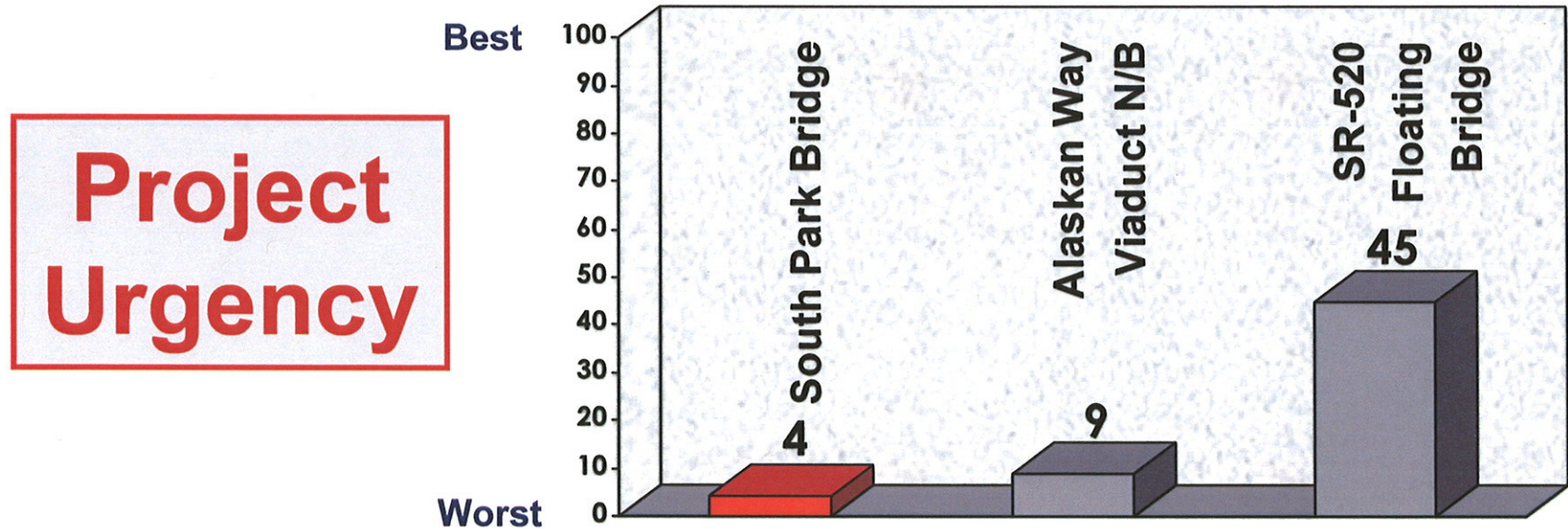
An aerial photograph of a city, likely Seattle, showing a river (the Duwamish River) flowing through it. A large bridge (the Duwamish Narrows Bridge) spans the river. In the background, a dense forested hill rises, and the city skyline is visible in the distance. The text "Project Urgency" is overlaid in a large, bold, green font.

# Project Urgency





## Federal Ratings of Other Regional Bridges

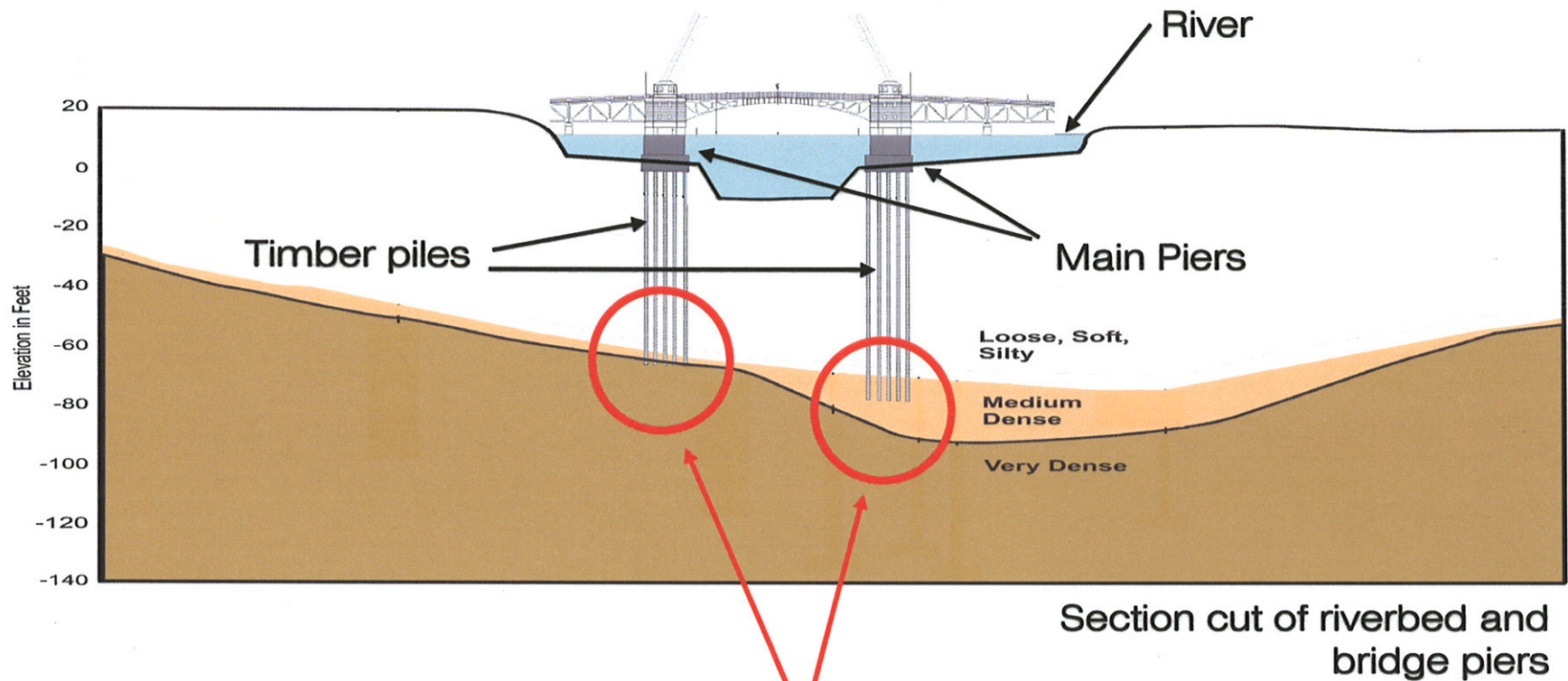


- Four major South Park Bridge deficiencies **CAN'T BE FIXED**
- 2006 Peer Review recommends immediate planning for replacement or closure of bridge due to various risks of continued bridge operation





# Project Urgency



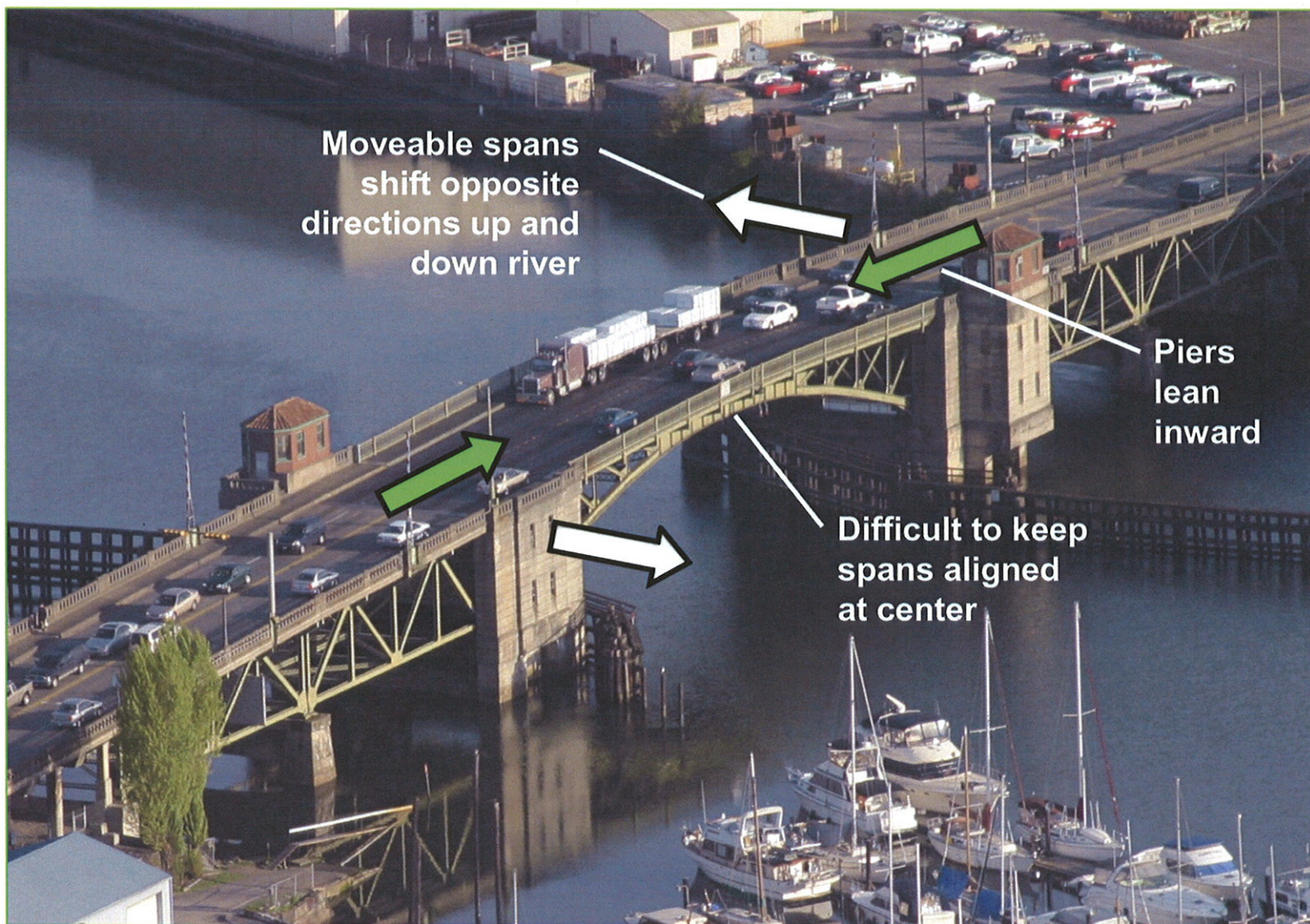
FLAW  
**1**

**Piling inadequate to support bridge piers...**





**...causing main piers to move – CAN'T BE FIXED**





FLAW  
**2**

# Project Urgency

FLAW  
**3**

**Concrete piers cracking throughout**

**Cracks are “active” under traffic loads and during bridge openings**

**CAN'T BE FIXED**



**Concrete self-destructing**  
**Chemical imbalance**

**CAN'T BE FIXED**





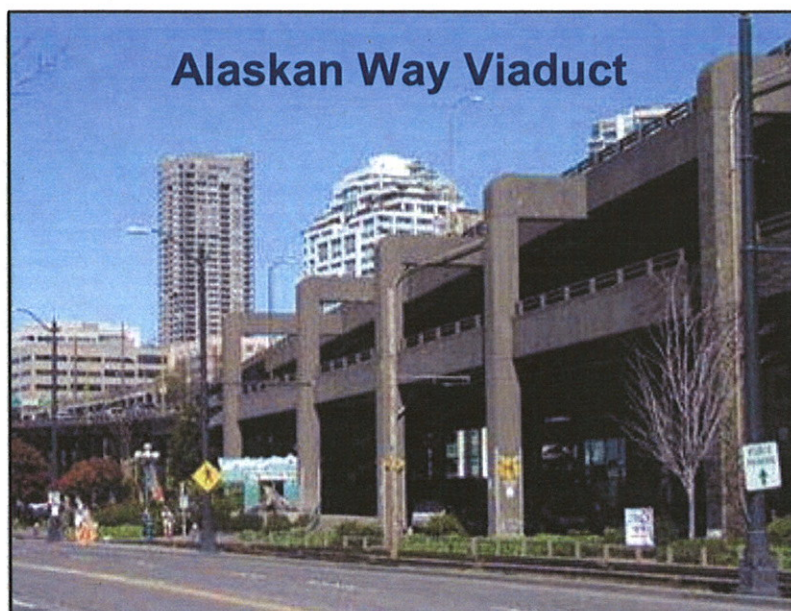


FLAW

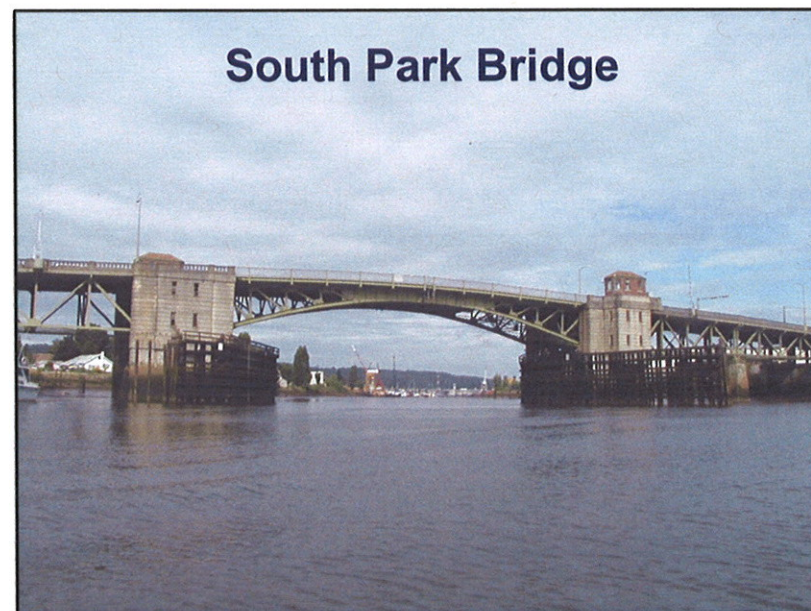
4

Bridge has been weakened by three earthquakes in 1949, 1965, and 2001 and is

**7 times more vulnerable than the viaduct**



**1 in 20** chance of significant earthquake damage in next 10 years.



**1 in 3** chance of significant earthquake damage in next 10 years.





# Condition Summary

- Poor condition
- Can't be fixed
- Seismically vulnerable

And...

- Load capacity of bridge is marginal
- Unable to calculate load capacity of main bridge piers due to widespread cracking and movement



Damage from Nisqually Earthquake  
2001

**Therefore, if construction funding is not  
secured,**

**bridge closure will be initiated in 2010.**



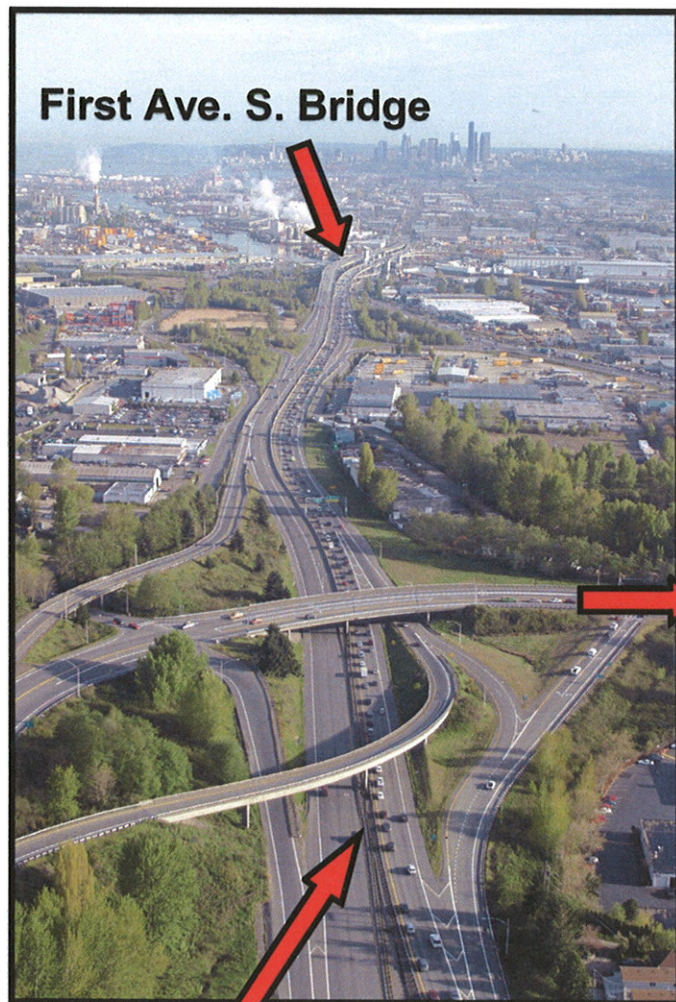
An aerial photograph of a city, likely Seattle, showing a bridge crossing a body of water. The bridge is partially closed, with a section in the middle missing or collapsed. The city skyline is visible in the background, and the foreground shows residential areas and industrial buildings. The text "Implications of a Bridge Closure" is overlaid in the center.

# Implications of a Bridge Closure





## Bridge important to regional traffic flow



First Ave. S. Bridge

To South  
Park  
Bridge

Existing traffic queues already long  
approaching First Ave. S. Bridge







## If the South Park Bridge is **closed**...

- Delays double in both AM & PM commutes at First Ave. S. Bridge intersections
- Economic impact to South Park businesses with dead end arterial (14<sup>th</sup> Ave S)
- Freight mobility worsens
- Pedestrian / bicycle access to E. Marginal Way transit lost
- Less redundancy in road network in crossing Duwamish River

**Note** – The newer First Avenue South Bridge was built in 1996 under assumption that South Park Bridge would remain in service.







# Bridge Demolition Costs

## Option 1

**\$20M** – Engineering, Permitting, Construction

- Complete bridge removal, embankment and site restoration, arterial reconfiguration, mitigation
- Duration = 9 months

## Option 2

**\$9M** – Engineering, Permitting, Construction

- Bridge removal shore to shore
- Concrete approaches remain, barricade 14<sup>th</sup>/16<sup>th</sup> Avenue at each end of bridge
- Duration = 3 months

*Note – For both options, KC returns \$5M STP grant and project is fully funded by KC Roads Fund*



An aerial photograph of a city, likely Seattle, showing a river, a bridge, and a city skyline in the background. The text "Project Status" is overlaid in the center.

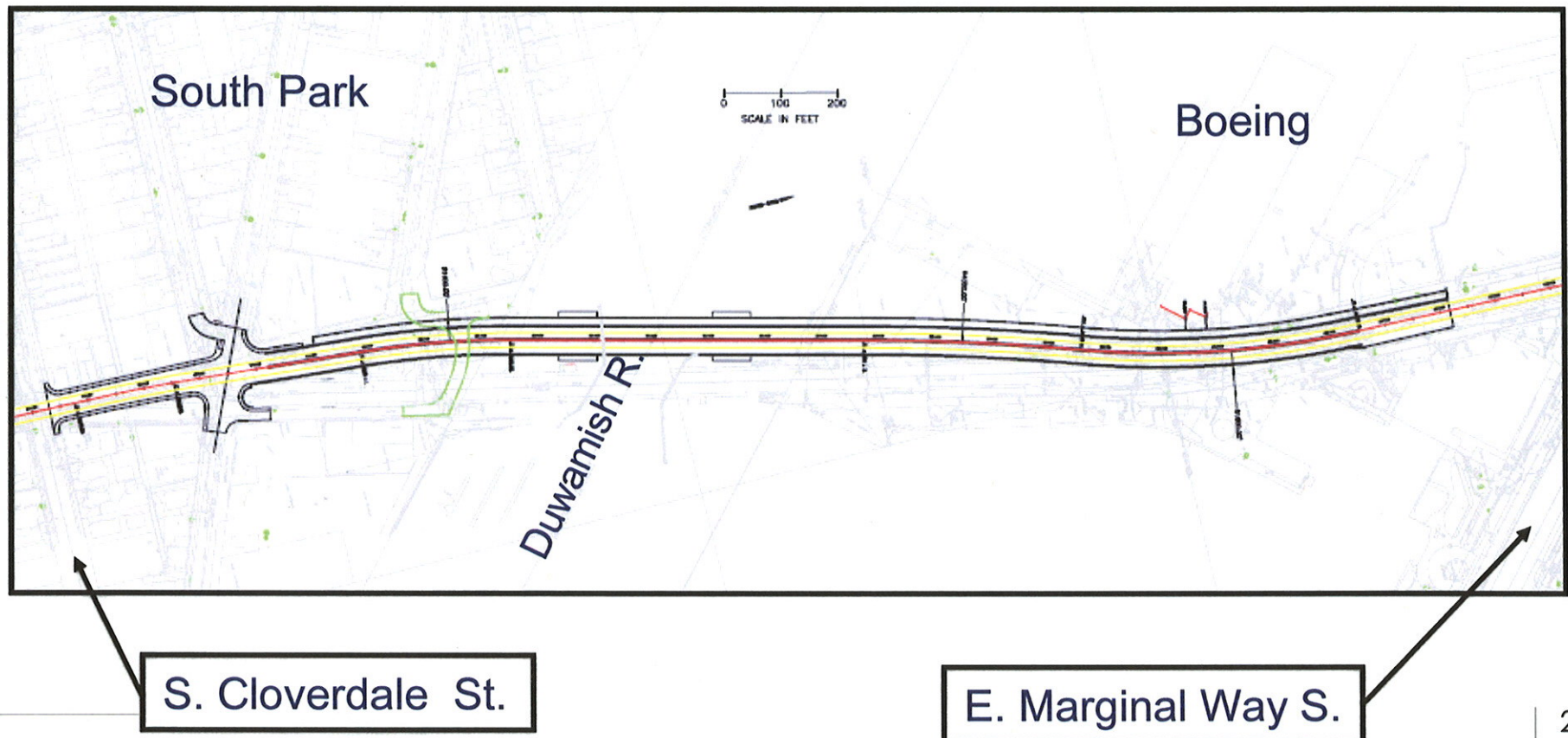
# Project Status





## Replacement Bridge

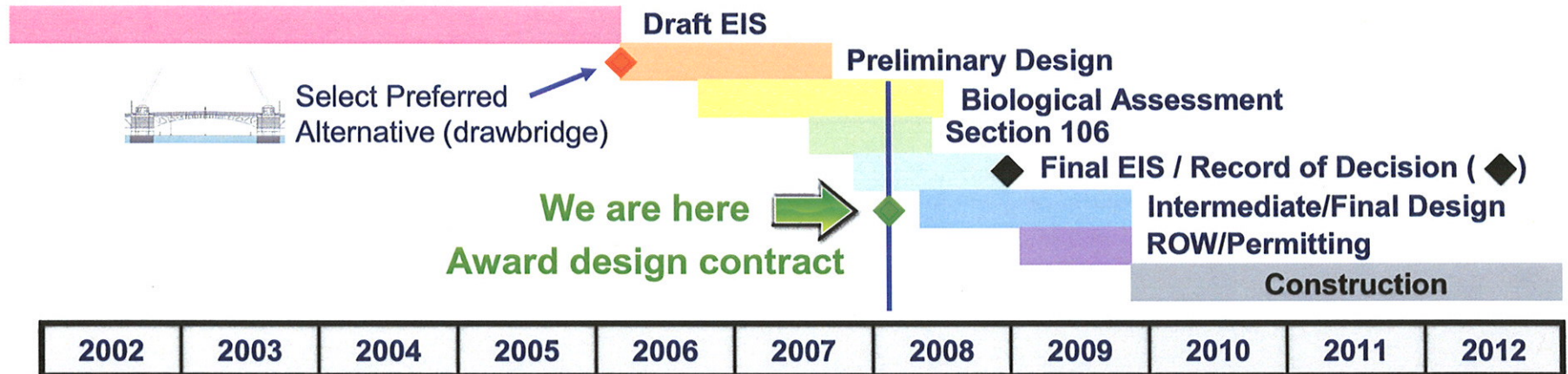
- New moveable bridge downriver and parallel to existing bridge
- Project limits – Cloverdale to E. Marginal
- Minimal disruption to traffic - 4 total weeks of bridge closure during 33 months of construction
- Will continue to maintain existing bridge







# Schedule



## NEXT STEPS -

- Biological Assessment under review by permitting agencies
- Section 106 (National Historic Preservation Act) to be finalized
- Final EIS and Record of Decision by December 2008
- Intermediate/Final Design begins April 2008, completed Dec 2009

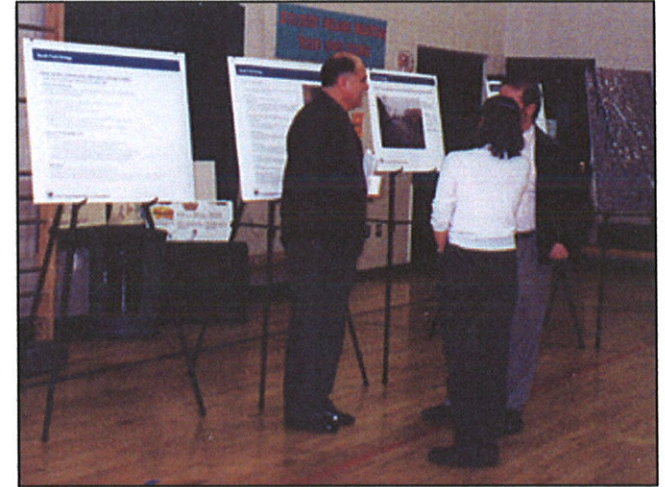
If funded, ready for construction in **2010**





# Community Outreach

- Citizen Advisory Group (CAG)
  - 12-15 members
  - Wide range of representation
- CAG Meetings
  - 2002 – 5 meetings
  - 2003 – 2 meetings
  - 2004 – 4 meetings
  - 2005 – 1 meeting
  - 2006 – 1 meeting
- King County Public Meetings
  - 2002 – 4 meetings
  - 2005 – 1 meeting
  - 2007 – 1 meeting





An aerial photograph of a city, likely Seattle, showing a river (the Duwamish River) flowing through it. A large bridge (the Duwamish Narrows Bridge) crosses the river. In the background, a dense forested hill (Cathlamet Hill) is visible, and further back, the city skyline with several tall buildings (the downtown Seattle skyline) can be seen. The foreground shows a residential area with houses and trees. The text "Project Funding" is overlaid in the center of the image.

# Project Funding





# **King County's Commitment to the South Park Bridge**

## **Cost of project through completion of EIS, Design, and Permitting**

- **\$21.9M – total 2000 – 2010**
  - **\$10.2M – total grants and agreements**
  - **\$11.7M – King County Road Fund**
- **\$150M – total construction of new bridge and  
demolition of existing bridge (2010 – 2013)**